BACKGROUND

DISTURBED LANDS

Past Commercial Logging and Park Expansion

Before 1978 much commercial logging and associated road building were done just upstream of the parks. More than 38,000 acres (70%) of the Redwood Creek watershed was logged before the expansion of Redwood National Park in 1978. In timber harvest areas, road networks are the primary source of erosion. There were 445 miles of abandoned logging roads and 3,000 miles of skid roads in these cutover areas (see the Roads in Redwood Creek Basin map). The 1978 park expansion (PL 95-250) came about because of this extensive logging. The logging roads and post-logging exposed slopes were prone to erosion, and over time massive amounts of the eroded sediment washed into Redwood Creek and its tributaries in the national park (see next subheading on "Past Logging in Old Growth" for details on previous logging techniques).

The increased sediment caused the water in the creeks and tributaries to rise, eroding the streambanks and stream channel — carrying away soil that shallow-rooted streamside redwoods needed to keep them upright. The redwoods were being directly impacted and threatened by upstream logging outside the park, and in the early 1970s environmentalists were alarmed at the large trees that were falling because of the undermining erosion. The 1978 expansion (about 48,000 acres) increased the amount of federal/national park land along the Redwood Creek corridor, protecting more lands near the creek and its tributaries from logging, and included more land upslope within the national park so that it also would be protected from logging. The additional lands in this expansion area were logged (cutover) lands that would require extensive and expensive rehabilitation, a situation that was uncommon for national park system lands.

The initial watershed restoration (rehabilitation) program in the 1980s in the national park focused on erosion control efforts through road removal and removing fill from streams, and 190 miles of roads have been removed with these techniques. Over time, assessment of the restoration methods has resulted in improved treatments. The emphasis is now on watershed restoration rather than just road removal. The restoration goal is to restore watersheds to conditions that would have existed before logging occurred. For more information please see the discussion of erosion in the "Natural Resources" chapter of the "Affected Environment."

How Does Logging outside the Parks Affect Trees inside the Parks, Miles Away

Erosion, a natural process, is yielding unnatural amounts of sediment into streams because of timber harvesting in the area of Redwood National and State Parks. Logged land no longer has the brush cover and canopy of trees to protect the soil from eroding. Also, roads built to transport the harvested trees are prone to erosion because the vegetation has been removed (see glossary entry "Logging in Old Growth" for details on past logging techniques). Through time, the sediment eroding from the slopes and roads washes into creeks and tributaries and moves downstream, sometimes in huge amounts. Sediment fills the stream channels and they become shallower and wider. Trees that were growing near or on the banks — streamside environments are the places redwoods prefer and where they grow the best and the tallest — are now closer to the banks or even in the water. The soil around and under the relatively shallow redwood roots erodes, especially during storms when the water becomes higher and faster. The wind can more easily topple the trees.

Another aspect of the problem is that tree roots must have ample oxygen for survival. Sediment deposited upstream raises the channel bed and thus the water table and drowns the roots. Streamside redwoods and Douglas-fir cannot survive.

Past Logging in Old Growth

Old-growth redwood is significantly larger and heavier than other commercial timber species, and it requires bigger yarding (moving of trees from the point of felling to a landing where felled trees are concentrated before loading on trucks for transport to market) and hauling equipment. The result is large-scale land disturbance. At the time when much of what is now the national park was harvested, old-growth timber was still abundant, and much of the lower quality or less marketable wood was left where it fell, used to cushion the fall of other redwoods or to construct stream crossings, in place of culverts. Some of these practices are not allowed under today's timber harvest rules.

The logging haul roads in the parks are 30–50 feet wide, closely spaced cut-and-fill roads; many are well armored with gravel or crushed rock. They were commonly used by "off highway" trucks, which carried much larger loads than those allowed on public roads. To minimize yarding distances, large landings (50–100 feet wide and long) that were used to stockpile and load logs onto trucks were frequently spaced along the haul roads. Many of the drainage structures installed along these old haul roads would not be allowed today. Most of the larger streams had culverts, but often there were logs, other woody debris, and fill placed in the channel beneath the culvert to reduce the length of culvert needed. Many culverts are undersized for a 50-year-return-interval storm. Some stream crossings, known as Humboldt crossings, were constructed of logs and fill; some had no drainage structures at all. Most roads were constructed with in-board ditches (ditches on the cut side of the road, rather than on the outside edge) to carry intercepted hillslope runoff to a culvert.

In tractor yarded areas, crawler tractors were used to pull the logs of the individual trees to the landings on the haul roads; the routes they carved by cutting and filling are known as skid roads. Where a route was used repeatedly, or even just once with several old-growth logs dragging behind the crawler tractor, the skid roads could become as wide as the smaller haul roads. Where streams needed to be crossed, typically logs and other woody debris were placed in the channel, and then soil was pushed in on top, creating a Humboldt crossing.

Layouts (beds onto which trees are felled) are unique to old-growth redwood logging. Old-growth redwood trees are very brittle and, to minimize breakage during falling, layouts are constructed for as many trees as possible. Before powerful bulldozers were developed in the late 1940s, or in cable-yarded areas, these beds were made of other less valuable trees. During the period when most of the parklands were logged, tractor yarding predominated and, in those areas, bulldozers were used to create the layouts. They were cut into the hillslopes, like a road, in whatever direction was most favorable for felling the tree. They are typically the width of a large bulldozer's blade (~15 feet) and the length of the tree's height (200 to 350+ feet) and they have a straight, even grade.

Where convenient, layouts might be later used as roads, and roads were sometimes made into layouts, only to be used as a skid road again. It is often difficult to distinguish between the two, as well as it is to distinguish between haul and skid roads. There are no consistent distinctions between the various uses of the roads/hillslope cuts that can be made simply in terms of their width. However, they all disrupt the natural drainage network.

As a consequence of the immense size and weight of the redwood timber and the equipment used to remove it, there has been a large amount of ground disturbance on the parks' logged lands, especially in those areas that were tractor-yarded. Ground disturbance to the hillslopes from cable yarding is significantly less because bulldozers were not used to cut layouts and skid roads and drag out the logs. Instead, a cable system was set up at the landings, the fall of the tree was cushioned by other trees or uphill falling, and then the logs were dragged to the landings using the cables. Because most of the parks' logged lands were tractor-yarded clear-cuts, the degree of disturbance is much greater than would be found in cable-yarded areas.

THE PARK PROTECTION ZONE

A separate park protection zone (PPZ), a zone of about 33,000 acres of private land immediately upstream and upslope from the national park boundary, was also established as part of the 1978 expansion of the park (PL 95-250). Within this zone, RNSP staff have greater authority to protect the park from the damaging effects of avoidable erosion due to timber harvest and other land uses. When Congress established this zone, it guaranteed that the RNSP staff would have access into that private land so as to protect the park. RNSP staff has more review authority over plans for timber harvest in that zone than in areas upstream from the park protection zone. For example, RNSP staff are always invited to preharvest inspections on PPZ lands; however, on the private land farther upstream RNSP staff must obtain landowner permission to attend preharvest inspections.